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On the Progress, Extent, and Value of the Coal and Iron Trade of the West of Scotland. By JOHN STRANG, LL.D.

[Read before the Statistical Section of the British Association at Glasgow, September, 1855.]

THE rapid progress which has of late years characterised some of the now largest cities of Great Britain is mainly due to the mineral wealth which surrounds them; to the existence, in fact, of those vast repositories of fuel, or of metals, which nature has laid up for the use of man in the bowels of the earth. If one only casts his eye over a geological map of this island, he will find, in England, a Birmingham, a Newcastle, a Preston, and a Manchester, placed in the midst of extensive coal fields; and, on looking at Scotland, he will at once discover, amid the general thinness of habitation and population, at least one fully peopled district, in the centre of which stands the no less important manufacturing and commercial city of Glasgow, surrounded on every side by the richest strata of coal, iron, and lime. To the mineral wealth which exists in this portion of Scotland may be mainly attributed the prominent position which its western metropolis has lately taken in the commerce and manufactures of the world, and which the following statistical facts connected with the progress, extent and value, of the coal and iron trades of the west of Scotland, of which that city is the central mart, may, perhaps, in some degree, better illustrate.

Although coals have, from a pretty remote period, been wrought around Glasgow, chiefly for domestic use, yet it has only been since the introduction of the steam engine, and still more since the discovery of the economical mode of smelting iron by the hot-blast, that the vast and closely packed mineral wealth of its neighbouring districts has been at all fully developed and turned to great profit. Even so late as in the year 1831, the quantity of coals brought to Glasgow, was only about 560,000 tons, and of that quantity 120,000 were exported, thereby leaving 440,000 tons for domestic uses, steam-boats, public works and factories in the city and suburbs; while the quantity consumed, as well as the ironstone smelted in the comparatively few furnaces then in blast, was small and unimportant. The contrast, indeed, of the state of the coal and iron trades only five-and-twenty years ago with that of the present moment is most striking. From the returns obtained through Mr. Williams, the Inspector of Mines for Scotland, it appears that in 1854, there were 367 collieries in Scotland, 237 of which belong to the west country, 141 being in Lanarkshire, 78 in Ayrshire, 11 in Dumbarton, and 7 in Renfrew. It also appears that during the same year there were 7,448,000 tons of coals raised in Scotland, and of these about 6,448,000 were drawn from pits situated in the four western counties above alluded to. Taking into account all kinds of coals raised, such as splint, soft, and gas, the average price may be fairly estimated at 7*s.* 6*d.* per ton, which shows the produce derived from the coal mines of the west of Scotland, in 1854, to have been about 2,418,000*l.* sterling.

Of the coals so produced

2,152,800 tons were consumed in the manufacture of pig iron.
 367,200 ,, ,, conversion of pig into malleable.

Making in all 2,520,000 tons used in connection with the manufacture of iron.

while 926,221 tons were shipped, and 148,312 tons were sent beyond the boundaries northward and southward, per railways, leaving for the manufacturing consumption, steam-boats, and domestic uses of Glasgow, 2,853,427 tons. During the same period the number of persons employed in the collieries, producing this quantity of fuel, was as follows:—

In Lanarkshire	15,580
„ Ayrshire	6,061
„ Renfrewshire	790
„ Dumbartonshire	549

In all 22,980

If the great developement of the coal trade, as we have seen, has been of recent origin, the manufacture of iron in Scotland is still more modern, having obtained its present almost marvellous position during the course of the last few years. So late as in 1830, there were only 16 blast furnaces in the West of Scotland, and the whole produce scarcely reached 40,000 tons. It appears, however, that during the year 1854, of the 118 furnaces for the smelting of iron ore, then in full blast in Scotland, and producing 796,640 tons of pig iron, 102 were situated in the two western counties of Lanark and Ayr, 72 being in the former and 30 in the latter, and the produce of these amounted to 717,600 tons. Taking the average price, during that twelvemonth, as 79s. 8d. per ton, the gross value of this industry is shewn to have been 2,858,440*l.* Of this very large quantity of pig iron produced in the west of Scotland, 122,684 tons were shipped direct to foreign countries, and 294,194 tons were sent coastwise from the Clyde, Port Dundas, and the western ports of the Clyde estuary; while 22,865 were sent away by railways; and 171,360 were converted into malleable iron; leaving the remaining 106,497 tons for foundry and other purposes of the district. The number of men employed in iron mining in the district, during 1854, were 3,645 in Lanarkshire, and 1,943 in Ayrshire, making in all 5,588, whose wages, at 22s. per week, shew an annual expenditure on wages of 319,633*l.* 12s., while the number of men employed in managing and working the furnaces amounted to 1,344, who were paid on an average 4s. 6d. per day, or an annual aggregate sum of 110,376*l.*

But if the manufacture of pig iron be a modern industry in the west of Scotland, assuredly that of malleable iron is still more recent; for, with the exception of a small work at Wilsontown, which was unsuccessfully attempted there at a somewhat remote period, almost nothing was done in this manufacture till 1839; and even so late as in 1842, the production did not exceed 35,000 tons. During the year 1854, however, the manufacture of malleable iron reached 122,400 tons; and taking the average price of all sorts, including plates for shipbuilding, to have then been 10*l.* per ton, the

gross amount of this industry was 1,224,000*l.* The number of men employed in this branch, was about 4000, and the rate of wages paid was 28*s.* per week, showing an annual aggregate amount paid in wages to have been 291,200*l.*

Assuming then all these statements to be as correct as perhaps they can possibly be made, let us now see what was the real value, to the west of Scotland, of the whole of these industries in 1854.

Value of coal	£2,418,000
Value of pig iron	£2,858,440
Deduct value of coal used in smelting, say 3 tons of coal for each ton of pig, or 2,152,800 tons, at 7 <i>s.</i> 6 <i>d.</i>	807,300
	<hr/> 2,051,140
Value of malleable iron	£1,224,000
Deduct value of pig iron used, say 171,360 tons at 79 <i>s.</i> 8 <i>d.</i> }	£682,584
Deduct value of coals used in conversion from pig into malleable, say 367,200 tons at 7 <i>s.</i> 6 <i>d.</i>	137,700
	<hr/> 820,284
	<hr/> 403,716
Net value of coal and iron	£4,872,856

We find also from the foregoing statements that the number of persons employed in these industries, and the wages paid, were as follows:—

Employed in Collieries	22,980 at 21 <i>s.</i> per week =	£1,254,708
„ Iron mining	5,588 „ 22 <i>s.</i> „ =	319,633
„ Attending furnaces....	1,344 „ 4 <i>s.</i> 6 <i>d.</i> per day =	110,376
„ Malleable iron works	4,000 „ 28 <i>s.</i> per week =	291,200
	<hr/> 33,912	<hr/> £1,975,917

In short, the foregoing tables shew that the coal and iron works of the west of Scotland, of which Glasgow is the great central mart, produced no less a sum to those connected with these establishments than 4,872,856*l.*, and gave employment to 33,912 persons, who received for their labour wages to the amount of 1,975,917*l.*

When the magnitude of these figures and the value which they bear on the social and economical condition of this great mining and manufacturing district are calmly considered, it will not be difficult to arrive at one of the main sources of the lately greatly increased wealth of Glasgow and its vicinity, or to account for one of the chief causes of attraction to the industrious mechanics and labourers, from all parts of the country, which have already rendered the united counties of Lanark, Ayr, Renfrew, and Dumbarton, one of the most thickly peopled and well conditioned portions of Great Britain.